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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,891	06/07/2000	Tsuo-Chang Lee	06837-099001	8974
26161	7590	05/05/2004	EXAMINER	
FISH & RICHARDSON PC 225 FRANKLIN ST BOSTON, MA 02110			WONG, KIN C	
			ART UNIT	PAPER NUMBER
			2651	

DATE MAILED: 05/05/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/588,891

Applicant(s)

LEE ET AL.

Examiner

K. Wong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>14&16</u> . | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 10/30/03 has been entered.

The herein Office action is based on the newly discovered prior arts.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims (1-4, 8, 9, 13, 16-18, 20 and 27-30) are rejected under 35 U.S.C. 102(b) as being anticipated by Ohsato (4775968).

Regarding claim 9: Ohsato discloses a triple push-pull (see col. 1, lines 6-8 of Ohsato) system (as depicted in figure 8 of Ohsato and see associated description for details) for generating a composite signal in a servo signal of a data recording system to drive a recording head to any given position within any given track (see col. 4, line 60 to col. 5, line 33 of Ohsato) which including:

an optical pickup (as depicted in figures 5 and 8 of Ohsato) means for generating three optical spots (see depiction of figure 7 of Ohsato) focused on a recording medium, the spots separated by equal distances across a track, the optical pickup means receiving a set of reflectances from the three spots (see col. 4, lines 42-50 of Ohsato);

a media (element 5 in figure 7) means for providing the servo tracks responsive to optical spot illumination;

an electronic means (as depicted in figure 8 which in accordingly with the instant specification on page 6, lines 10-17) for generating a set of three filtered signals from the three reflectances and generating a set of three S-curves by pair-wise subtraction of the filtered signals (The generations of the S-curves are described in col. 4, lines 22-50 and col. 5, lines 1-9 of Ohsato which are inline with the instant specification on page 8, lines 10-16.);

a processing means (see col. 1, lines 11-41; col. 2, lines 16-44 and col. 5, line 1 to col. 6, line 22 of Ohsato) to generate a composite servo position signal from the S-curves and filtered reflectances;

a servo means (servo system for adjusting the head is inherent because Ohsato describes the processes of control the servo means of the recording apparatus in col. 2, lines 16-44). Thus, the triple push-pull system of the recording apparatus is satisfied because Ohsato discloses the triple push-pull system for servo controlling in the recording apparatus.

Regarding claims 13 and 24: the limitations of wherein the optical spots are separated by one-third track pitch in a direction across the servo tracks are inherent

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because Ohsato discloses that the track pitch could be varies in col. 4, lines 60-68 which encompasses the one-third track pitch.

Regarding claim 16: Ohsato teaches that wherein each reflectance value maximum amplitude is normalized to a constant value in col. 6, lines 1-11 of Ohsato.

Regarding claim 17: Ohsato teaches that wherein processing means to generate a composite servo position signal from the S-curves and filtered reflectances comprise: choosing the pair of reflectance values with the largest amplitude gradient; and adjusting the chosen S-curve position estimate for the zone based on a slope and an offset (in col. 4, lines 22-50 and col. 5, line 1 to col. 6, line 22 Ohsato).

Regarding claim 18: Ohsato teaches that wherein individual S-curve position estimates are blended together to generate a continuous position estimate as individual linear sections are traversed (in col. 5, line 1 to col. 6, line 22).

Regarding claims 1-4, 8, 20 and 27-30: method claims (1-4, 8, 20 and 27-30) are drawn to the method of using the corresponding apparatus claimed in claims (9, 13, 16-18). Therefore method claims (1-4 and 8, 20 and 27-30) correspond to apparatus claims (9, 13, 16-18) and are rejected for the same reasons of anticipation as used above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims (5-7, 10-11, 19 and 21-22) are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohsato (4775968) in view of Yanagawa et al (5673245).

Regarding claims 10-11: the reason for Ohsato is stated in above. Ohsato fails to mention the recording medium is tape type. Yanagawa et al is relied for the tape type of the medium (as depicted in figure 2 and see col. 1, lines 13-35 of Yanagawa et al).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the storage medium of Ohsato with tape type as taught by Yanagawa et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to provide more recording density with the tape medium as suggested in col. 1, lines 18-23 of Yanagawa et al.

Regarding claim 19: Ohsato fails to further mention wherein the closed loop servo system comprises a digital processor, the digital processor used to perform the composite servo position calculations from the reflectance values, derive a position error signal based on the position estimate and a commanded position, compensate the error signal in such a way as to reduce the lateral tape motion, and command an actuator to follow the lateral tape motion. Yanagawa et al further relied on the noted functions above (see figure 2 and col. 3, line 56 to col. 6, line 16 of Yanagawa et al).

It would have been further obvious to one of ordinary skill in the art at the time of the invention was made to modify the storage medium of Ohsato with tape type as taught by Yanagawa et al. The rationale is as follows: one of ordinary skill in the art would have been motivated to provide more recording density with the tape medium as suggested in col. 1, lines 18-23 of Yanagawa et al.

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Regarding claims 21-22: method claims 21-22 are drawn to the method of using the corresponding apparatus claimed in claims (10-11). Therefore method claims (21-22) correspond to apparatus claims (10-11) and are rejected for the same obviousness as used above.

Claims (5-7, 12, 14-15, 23 and 25-26) are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohsato 94775968) and Yanagawa et al (5673245) as applied to claim 10 above, and further in view of Ishii et al (6103365).

Regarding claims 12 and 14-15: the combination of Ohsato and Yanagawa et al fails to mention that the optical servo tracks (servo pits or spots) are formed on the back-coating (or non-magnetic surface) layer of the recording medium. Ishii et al is relied on for the optical servo tracks on the back coating the tape (see figures 2 and 3; and; col. 2, line 61 to col. 3, line 67 of Ishii et al).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination of Ohsato and Yanagawa et al with the back-coating layer servo track as taught by Ishii et al. the rationale is as follows: one of ordinary skill in the art would have been motivated to provide a servo track without lessening the data recording area as suggested in col. 1, lines 56-58 of Ishii et al.

Regarding claims (23 and 25-26): method claims (23 and 25-26) are drawn to the method of using the corresponding apparatus claimed in claims (12 and 14-15). Therefore method claims (23 and 25-26) correspond to apparatus claims (12 and 14-15) and are rejected for the same obviousness as used above.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Claims (1-4, 9-10, 19- 22 and 27-30) are could read in col. 1, lines 36-67; col. 2, lines 57-62 and col. 3, line 57 to col. 8, line 63 and figures 12A- 15D of Yanagawa et al; but, Yanagawa was not used as a stand alone reference. Bakx (5155717), Pierce (5237556), Mashiyama et al (5737297), Miyazaki et al (5515353), Tezuka et al (5742572) and Fujita (5886964) are cited for multiple beams and spots servo control. Evans et al (5462823) is cited for magnetic medium with optical servo.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Wong whose telephone number is (703) 305-7772.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Hudspeth can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kw

2 May 04


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